

REMARKS

No claims have been amended, cancelled or added. Hence, claims 1 – 24 are pending in the Application.

Claims 1 – 24 are rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 6,108,653, herein Pereira.

CLAIMS 1 AND 13

Claims 1 and 13 recite:

constructing work granules that manipulate rows in a manner that groups the rows within said work granules according to logical storage units that contain the rows; and during execution by an entity of a particular work granule that involves manipulation operations for rows in a particular logical storage unit:
causing said entity to perform said manipulation operations for rows completely contained in said logical storage unit;
determining a set of spanning rows that are partially contained in said logical storage unit and that satisfy a particular condition; and
causing said entity to perform said manipulation operations for all pieces of all spanning rows in said set of spanning rows.

The system of claims 1 and 13 recite a novel and advantageous approach for modifying data in spanning rows. A spanning row is a row that is stored in more than one logical storage unit, such as a data block. The portions of rows are referred to as row pieces. (See, for example, Application, page 3, lines 8 – 10). The approach claimed requires that an entity, such as a slave process, perform manipulation operations on all pieces of a spanning row when the spanning row satisfies a condition. An example of such a condition is that a spanning row start in a logical

storage unit (see claim 2). The cited art fails to suggest all the features required by claims 1 and 13.

There are at least three features required by claims 1 and 13 that are not suggested much less disclosed by the cited art. These features are:

(1) constructing work granules that perform operations on rows in a logical storage unit, where those operations are manipulation operations;

(2) constructing work granules that perform manipulation operations on rows in a logical storage unit, where the logical storage unit store includes a spanning row; and

(3) determining a set of spanning rows during execution of manipulation operations to a logical storage unit.

I. Pereira fails to suggest much less disclose constructing work granules that perform operations on rows in a logical storage unit, where those operations are manipulation operations.

Pereira describes a method for analyzing a table to generate information used by a DBA to maintain a database. The database includes spanning rows in data blocks. Among the information generated is information about the spanning rows, such as the total number of "chained rows", i.e. spanning rows. (col. 8, lines 47 – 49) To gather this information, the task of analyzing the information is distributed to a set of processes or threads, which are assigned a set of blocks to analyze. (col. 11, lines 38 – 49) The "blocks read are examined to determine the contents of each block. In this manner, block and row statistics are gathered from the blocks read. Once all threads have finished processing their respective assigned set of blocks, summation and averaging of information gathered from each thread is performed (Step 130)." (col. 12, lines 14 – 19)

Apparently the Office Action has equated work granules to the tasks of analyzing a set of blocks. Assuming for purposes of argument work granules can be equated in this way, Pereira nevertheless fails to suggest that the work granules involve manipulation operations to rows. Pereira clearly discloses blocks are read and analyzed, and thus, at best, teaches that rows in the blocks are read and analyzed. Pereira does not, however, suggest in any way that the rows read and analyzed are manipulated in any way, as required by claims 1 and 13.

II. Pereira fails to suggest much less disclose constructing work granules that perform manipulation operations on rows in a logical storage unit, where the logical storage unit stores a spanning row.

Even though Pereira teaches about spanning rows, it fails to suggest in any way constructing work granules that perform manipulation operations. Therefore, Pereira can not possibly suggest work granules that perform manipulation operations on logical storage units that include spanning rows, as claimed.

III. Pereira fails to suggest much less disclose determining a set of spanning rows during execution of manipulation operations to a logical storage unit.

The Office Action cites col. 4, lines 65 – col. 6, line 13 as disclosing the step of "determining a set of spanning rows that are partially contained in said logical storage unit and that satisfy a particular condition." Presumably, the Office Action is correlating this step to the step of "to determine the information in Table 1". This information includes information about chained rows. Pereira teaches that the information is gathered while reading blocks and generating information about the condition of the database, including the number of chained rows in a table. Thus, assuming Pereira teaches "determining a set of spanning rows that are partially contained in said logical storage unit and that satisfy a particular condition", at best, Pereira suggests to perform such a step while performing steps that do not involve manipulation

operations, such as when reading blocks and calculating the number of chained rows in a table. While such steps involve the manipulation of information about chained rows, they do not involve or suggest the manipulation of the chained rows themselves, as required by claims 1 and 13.

As shown above, Pereira fails to suggest much less disclose many features of claims 1 and 13. Therefore, Pereira is patentable. Reconsideration and allowance of claims 1 and 13 is respectfully requested.

CLAIMS 8 AND 20

Claims 8 and 20, recite:

inserting a first row piece of a spanning row into a first logical storage unit;
prior to inserting a second row piece of said spanning row into a second logical storage unit, determining whether one or more criteria is satisfied, wherein said one or more criteria include that said second logical storage unit has enough space allocated to identify at least a threshold number of interested transactions; and
inserting said second row piece of said spanning row into said second logical storage unit only when said one or more criteria are satisfied.

Claims 8 and 20 describe steps for inserting row pieces of a spanning row in a way that conditions performance of the step on criteria that specifically accounts for space needed to identify a threshold number of interested transactions. Inserting a row piece based on criteria that accounts for such a factor is not suggested much less disclosed by the cited art.

Clearly, the cited art teaches about criteria that controls whether a row is inserted into a data block. These teachings are alleged to have been taught at col. 3, line 66 – col. 4, line 34, the portion of Pereira cited by the Office Action as disclosing the step of determining whether one or

more criteria is satisfied. However none of the criteria used to govern row insertion taught by Pereira suggests the criteria cited by claims 8 and 20.

Specifically, Pereira teaches that a system wide variable PCTUSED is used to control whether a row is inserted into a particular block. "PCTUSED ... allows the DBA to control the row allocation of a DBMS table. The DBMS prevents additional rows to be placed in a block unless the percentage of that block has fallen below PCTUSED. PCTUSED is different from PCTFREE in the sense that although a block may be used if there is an update, it will not be used to insert a new row unless the percentage used in the block is below PCTUSED. Therefore, PCTFREE is used to maintain free space when the table is initially built, and PCTUSED determines whether a new row may be inserted in a block. The PCTUSED parameter comes into effect when used space becomes free due to deletes." (col. 4, lines 25 – 37)

Thus, Pereira teaches that criteria that controls insertion of a row into a block accounts for whether the amount of space available in the block is below a threshold manually established by a DBA. Nothing about such criteria suggests much less discloses criteria that specifically accounts for a threshold number of interested transactions, as claimed.

As shown above, Pereira fails to suggest much less disclose all the features of claims 8 and 20. Therefore, Pereira is patentable. Reconsideration and allowance of claims 8 and 20 is respectfully requested.

DEPENDANT CLAIMS

The pending claims not discussed so far are dependant claims that depend on an independent claim that is discussed above. Because each of the dependant claims include the limitations of claims upon which they depend, the dependant claims are patentable for at least those reasons the claims upon which the dependant claims depend are patentable. Removal of the rejections with respect to the dependant claims and allowance of the dependant claims is


respectfully requested. In addition, the dependent claims introduce additional limitations that independently render them patentable. Due to the fundamental difference already identified, a separate discussion of those limitations is not included at this time.

For the reasons set forth above, Applicant respectfully submits that all pending claims are patentable over the art of record, including the art cited but not applied. Accordingly, allowance of all claims is hereby respectfully solicited.

Respectfully submitted,

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